U.S. DEPARTMENT OF ENERGY | Office of Science

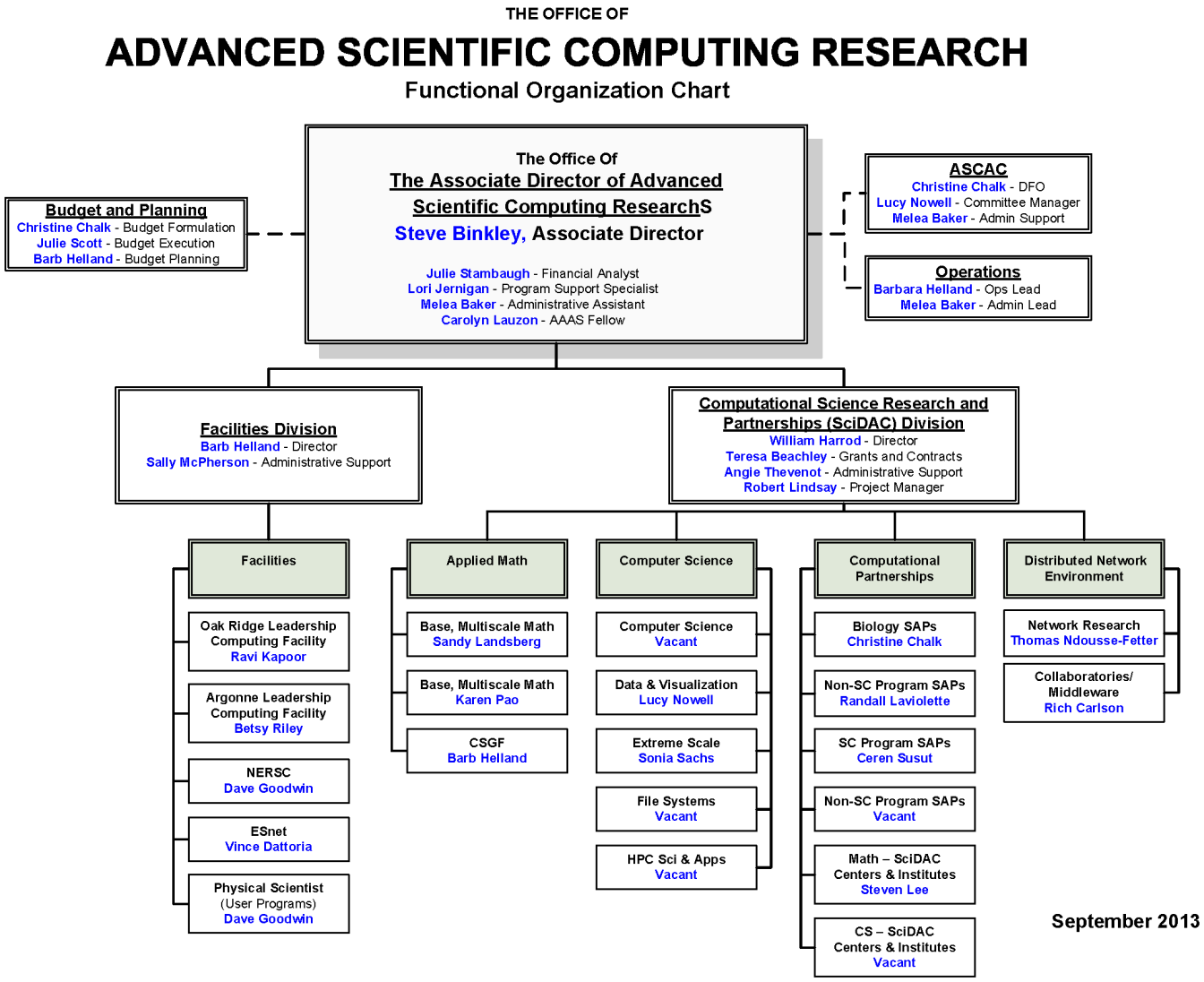
NERSC-ASCR Requirements Review

January 15, 2014

Barbara Helland

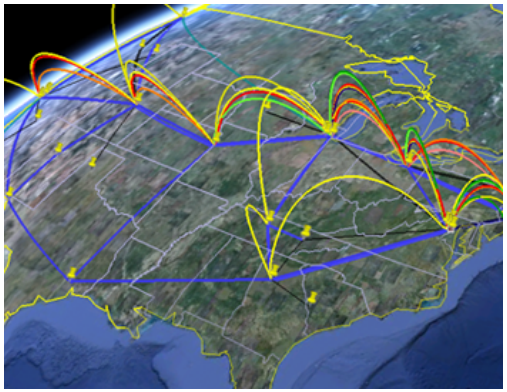
Advanced Scientific Computing Research

ASCR


THE OFFICE OF
ADVANCED SCIENTIFIC COMPUTING RESEARCH
Functional Organization Chart
Budget and Planning
Christine Chalk - Budget Formulation
Julie Scott - Budget Execution
Barb Helland - Budget Planning
The Office Of
The Associate Director of Advanced Scientific Computing ResearchS
Steve Binkley, Associate Director
Julie Stambaugh - Financial Analyst
Lori Jernigan - Program Support Specialist
Melea Baker - Administrative Assistant
Carolyn Lauzon - AAAS Fellow
ASCAC
Christine Chalk - DFO
Lucy Nowell - Committee Manager
Melea Baker - Admin Support
Operations
Barbara Helland - Ops Lead
Melea Baker - Admin Lead
Facilities Division
Barb Helland - Director
Sally McPherson - Administrative Support
Computational Science Research and Partnerships (SciDAC) Division
William Harrod - Director
Teresa Beachley - Grants and Contracts
Angie Thevenot - Administrative Support
Robert Lindsay - Project Manager
Facilities
Oak Ridge Leadership Computing Facility
Ravi Kapoor
Argonne Leadership Computing Facility
Betsy Riley
NERSC
Dave Goodwin
ESnet
Vince Dattoria
Physical Scientist
(User Programs)
Dave Goodwin
Applied Math
Base, Multiscale Math
Sandy Landsberg
Base, Multiscale Math
Karen Pao
CSGF
Barb Helland
Computer Science
Computer Science
Vacant
Data & Visualization
Lucy Nowell
Extreme Scale
Sonia Sachs
File Systems
Vacant
HPC Sci & Apps
Vacant
Computational Partnerships
Biology SAPs
Christine Chalk
Non-SC Program SAPs
Randall Laviolette
SC Program SAPs
Ceren Susut
Non-SC Program SAPs
Vacant
Math – SciDAC Centers & Institutes
Steven Lee
CS – SciDAC Centers & Institutes
Vacant
Distributed Network Environment
Network Research
Thomas Ndousse-Fetter
Collaboratories/ Middleware
Rich Carlson
September 2013

World Class Facilities

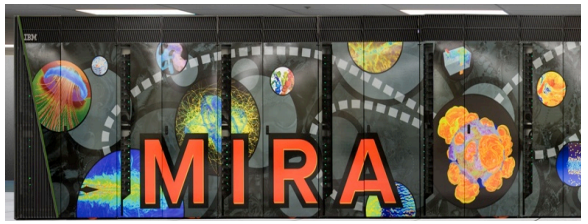
- High Performance Production Computing for the Office of Science
  - Characterized by a large number of projects (over 400) and users (over 4800)
- Leadership Computing for Open Science
  - Characterized by a small number of projects (about 50) and users (about 800) with computationally intensive projects
- Linking it together – ESnet



ESnet

Oak Ridge Leadership Computing Facility

National Energy Research Scientific Computing Center



Argonne Leadership Computing Facility

Requirements Gathering Ensure ESnet and NERSC Meet DOE Needs

NERSC and ESnet gather requirements directly from Scientists

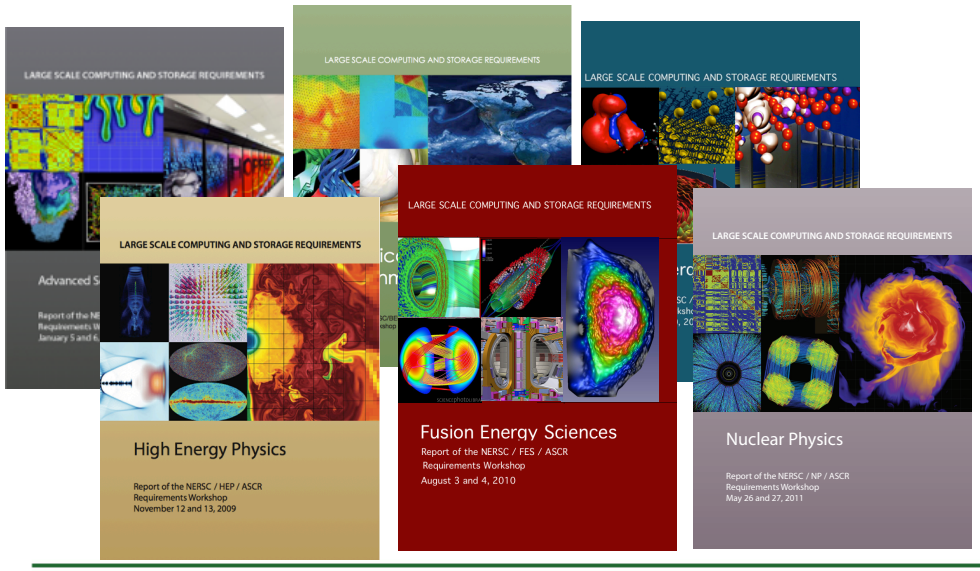
Program Requirements Reviews

- **Program offices evaluated every two-three years**
- **Participants include program managers, PI/ Scientists, ESnet/NERSC staff and management**
- **User-driven discussion of science opportunities and needs**

Science Case Studies drive discussions

- **What: Instruments and facilities, data scale, computational requirements**
- **How: science process, data analysis, collaboration scope, data distribution**
- **When: 0-2 years, 2-5 years, 5+ years**

Covers of Last round of NERSC Requirements Reports



Value of Approach

- **Review meetings establish consensus on requirements, capabilities, services**
- **Scientists, programs offices, and facilities have the same conversation**
- **Historical trends, technology advances, etc. are also incorporated**
- **Provides a solid, fact-based foundation for service and capability investments**
- **Addresses DOE mission goals by ensuring DOE science is effectively supported**

Have a productive workshop

Thank you for helping us define our next generation of resources.